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ABSTRACT

At a suburban Indiana elementary school, the Project Approach serves as the basis of the curriculum in all Kindergarten classrooms. The four classes of 5- and 6-year-old children at this school chose to study llamas. This article discusses how the project evolved, describes the three phases of the project, and provides teachers' reflections on the project. Photos taken during the project are included. (Author/HTH)

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The Llama Project

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Abstract

Four classes of 5- and 6-year-old children in a midwestern public school chose to study llamas. This article discusses how the project evolved, describes the three phases of the project, and provides teachers' reflections on the project. Photos taken during the project are included.

School and Student Background Information

Towne Meadow Elementary is a suburban school with approximately 720 children in kindergarten through fifth grade. There are four classes of kindergarten children. The kindergarten students attend on an alternating schedule two and one-half days per week. The Project Approach is used as the basis of the curriculum in all kindergarten classrooms. The kindergarten classes are staffed by two full-time teachers and two full-time assistants. There is also a generous amount of parent help, on a daily basis.

The Llama Project was conducted in all kindergarten classrooms, but because of the alternating schedule, only two classrooms were at school working on the project at the same time. The children were grouped by interest. This project was the first of the year, and none of the children had any previous experience with project work. Because our school is next door to a llama farm, and its owner, Dr. Riley, is willing to talk to the children about llamas, we have done this project three times. Each time, we gain new insight into the children and their thinking. This article is based on the second time we did the project.

Preliminary Planning and Selection of the Topic

Because we have a llama farm next door to our school, it was very natural for us to start talking about llamas. As we discussed them, the children quickly discovered that they knew quite a lot about llamas. All of the children had seen the llamas on their way to and from school, and some of the children had become aware of them when they came to an open house held in previous years. The discussion was easily started

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when the question was asked, "What do you know about the llama farm next door?" Because of the proximity of the llama farm, the children regularly observed the llamas and were therefore enthusiastic when they discussed new ideas at the beginning of the project. Even so, the children realized that there was much that they did not know about llamas. However, at this early point in the project, we neither affirmed nor negated what the children told us.

After a few days of discussion at morning circle, the children drew pictures about what they already knew about llamas. These pictures were drawn from the children's memories and experiences.

The teachers began their own discussion about beginning a project related to the llama farm. We felt that there was great interest in the topic; the fieldwork would be easily accessible because the llamas were so close; and Dr. Riley, owner of the llama farm, was very open to the idea of our visits. We also felt the topic was well within the realm of all of the children's experience.

Two big factors affected the planning of this project. First, because we would be outside to ask questions and interact with the llamas, we needed a time when the weather was suitable. Second, we wanted to give the children experience with the baby llamas (*crias*) and planned our visits around the time when Dr. Riley knew he would have newborn llamas.

The teachers documented the project as it developed. This documentation included drawings, transcribed conversations, photos, and any other items pertinent to the project. Documentation allowed children, parents, and other viewers to follow the progress of the project as it evolved through each stage. When the documentation was finished, the project unfolded like a story with a beginning, middle, and end. Many times, these displays sparked excitement, new ideas, or questions from the children.

Phase 1

Phase 1 includes discussing experiences, sharing knowledge and wondering aloud, raising questions, and preparing letters to parents.

The following activities took place during Phase 1 of the Llama Project:

- Sharing information about llamas at morning meeting
- Sharing experiences with llamas and talking about attending Dr. Riley's open house
- Documenting children's conversations in writing
- Walking over to the fence to allow the children to view the farm and the llamas
- Encouraging children to discuss the topic at home with their parents
- Writing down the children's ideas in the form of a web
- Helping the children write questions to ask Dr. Riley during our fieldwork

Group Discussion

Everyday at morning meeting, the children and teachers discussed llamas. The teachers started the conversations about llamas by asking questions, such as, "Do you see the animals next door when you come to school?" or "What do you think those animals are, and why are they there?" Llamas then became the topic of many interesting conversations. The children who had attended Dr. Riley's open house in previous years had many stories to tell. They told the other children about seeing the llamas do tricks and watching them get haircuts. These descriptions really interested the rest of the class. At this point in the project, we were only spending 15-20 minutes a day on the topic of llamas.

The children made the following comments during discussions at group meeting time:

> "I have seen llamas when I went to the 4-H fair, and we could touch them. They were very soft."

"I have two llamas. We bought them from Dr. Riley. I get to help feed them and brush them." (The teacher was very surprised because this comment was not shared until the third day of the discussion. The little girl did have two llamas and did help care for them. To the other children, she became an instant and valuable resource!)

"I think llamas are really camels, but they don't have a hump."

"How did Mr. Riley get so many llamas?"

"My mom told me that llamas spit."

"I like to see the llamas when I come to school on the bus."

"My mom took me there when they had an open house, and I saw llamas do tricks. They can jump over things. They were also dressed up in clothes."

"Llamas don't wear clothes!"

"Yes, they do. I saw them. Ask my mom."

"Llamas have fur; they don't need clothes. That is why they have fur to keep them warm."

Teacher interjects: "It is almost 85 degrees outside today. Do you think the llamas get hot?"

"No, we give our llamas a haircut in the summer so they don't get hot."

"I think I saw the llamas next door get haircuts when I was there."

"I think they all look like they have haircuts when I drive by."

"I think I saw a purple llama at the zoo."

"No, you did not. They aren't purple!"

"Llamas can be any color I think 'cause God made them."

"Why does Dr. Riley have a blue llama on his fence?"

"When I saw the llama on the fence, it was pink."

By listening to the children, the teachers got a good idea of the types of knowledge the children already had. We decided that llamas would make a good topic because (1) the topic was something the children were excited about, (2) the llama farm was close to our school so we could give the children hands-on experiences, and (3) Dr. Riley was very willing to be our expert and allow us to visit his farm.

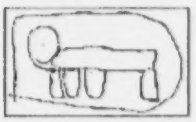
Many of the morning conversations were easily recorded. It is hard to record conversations of many groups working at the same time. Small tape recorders worked well for this type of recording, and the tapes could be listened to later. An assistant also took notes on a daily basis of the children's conversations. Many times, we use these conversations as a teaching tool later in the project or during the fieldwork. It was very easy to listen to the taped conversations after school or to have a parent transcribe them. From these conversations, we took notes and used them to help stimulate more conversations with the children.

Questions

The children started to ask the teachers questions about the llamas and the activities of llamas. Their interest presented an opportunity to keep a list. If a child asked a question during this part of the project, we would write it down on a large sheet of paper and explain to the children that we would get them answered when we visited Dr. Riley's llama farm.

Drawings

After a few days of discussion at morning circle, the children drew pictures about what they already knew about llamas. These pictures were drawn from the children's memories and experiences. It was interesting to see their perspectives of a llama. Here are just a few of the pictures that the children drew at the beginning of the project:



Figures 1-4. At the beginning of the project, the children drew llamas from their memories and experiences.

Before we asked the children to draw the llamas, we gave them many modeled lessons on drawing and many opportunities to practice. We talked about drawing and how things look. One teacher had taken a drawing class from Dr. Sylvia Chard and used many of the techniques she learned from the class to help the children. Two of the most important messages we gave the children were that everyone can draw and that they can look at anything as a shape.

The children were given special black pens to use for drawing because drawings made with these pens photocopy clearly. By hanging photocopies of the children's artwork in the hall, we don't risk damaging the children's original artwork. The children were also given pieces of cardboard cut into clipboard shape with two paper clips at the top to hold the drawing paper onto the cardboard. The children had experience using the clipboards when drawing things in the classroom or when drawing things they saw on nature walks.

A Visit through the Fence

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To keep the conversations exciting, the teachers decided to walk with the children over to the fence to view the llamas. We discussed what behavior was appropriate while at the fence. The children decided that we should be calm and quiet to get the llamas to come over to the fence.

The teachers decided to go in the morning to visit the llamas because we wanted to give the children the best opportunity to view the llamas. We had observed that the llamas were more active and more likely to be outside during the morning hours. We had noticed that as the day got hotter, the llamas went into the barn.

The children's excitement really rose the closer we got to the fence. The children carried clipboards and pens to draw what they saw. These drawings are very important as we go through a project. They help the children recall things they saw and what things looked like when the children make their representations later.

When we approached the fence, the llamas immediately came over to the fence because they are both tame and curious. The children were very excited. Here are some of the comments that we heard while at the fence, both observing the llamas and drawing them:

"Look at all of the llamas."

"Shhh! They are coming over to the fence."

"We have to be quiet, or they will run away."

"Do you think we can pet them?"

"Look! They are fighting."

"The babies are staying with their mommies."

"What are the babies doing?" (They were nursing.)

"They are eating."

"No, they aren't!"

"Yes, they are. Just like my sister. They are breast-feeding from their mommies."

"Mrs. Ganzel, is that right?" (I did not have time to answer before they were on to a new subject.)

Figure 5. The children visited the llamas at the fence.

After the excitement subsided, the children settled down to drawing the llamas. They did an excellent job of helping each other by giving suggestions on how to draw a llama and about what parts to put on the llama. Some children chose to draw only one llama, and others drew many. It was exciting for us as teachers to see some children represent three dimensions in their drawings. They would draw little circles or little x's to show that there was thick fur. This technique was something we had never discussed; it just occurred spontaneously.

Topic Web

Although this project was our first of the year, creating the topic web for this project was not our first experience developing a topic web. Before we started this project, we had worked with the children and demonstrated how to make webs using topics with which they were familiar such as their families or our school family. This strategy was a good way for us to teach them to categorize using specific characteristics for the topics and then description words as subtopics. This experience helped the children when we got ready to create a web about llamas.

After many great discussions and drawings, we created a web of the llama topic with the children. As facilitators, we neither approved nor negated what the children wanted to put on the web. Truths and myths are for the children to discover during fieldwork. Because this web was the first that the children made, the teachers had to facilitate this process. We asked many specific questions about the llamas. On the web, we started with the topic *Eat and Drink*. We discussed what subtopics might be written under this heading. As we continued to develop the web, someone said that llamas were brown. The subtopic colors had not been written on the web, and we asked the children, "Where do you think we should put that? Does it have anything to do with what they eat? Should it have its own section and not be with the food? What does brown have to do with?" Someone answered, "Colors." We then said, "Let's put a color subtopic up. What other colors are llamas?" This process continued until the web was completed.

Many times, it takes two or three meetings to get a web to the point where specific areas to study emerge. For the Llama Project, we met three times and still added to our web as the children came up with more ideas. From this web, the children began to formulate ideas of what they still wanted to learn about llamas. During this process, the children talked to their families about llamas. As these discussions continued, the children came up with more items that were added to the web.

As you can see from the web below, the children had many great ideas when it came to llamas and what they wanted to study.

Figure 6. The teachers and children developed a llama topic web.

From the web, the children decided that we needed to study the following topics:

- How Llamas Protect Themselves
- Where Llamas Live
- What Llamas Eat and Drink
- How Do Llamas Sleep?
- Colors of Llamas
- Fur
- Llama Babies
- What Llamas Do
- The Llama Farm
- Grooming Llamas
- Parts of a Llama

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Questions

Once the children had decided what topics they would study, they then decided which group they would like to join. Each group's goal was to come up with a list of questions that the children would ask when

they went to do their fieldwork at the llama farm.

Up until this point, we had been working with the children on questions, discussing what is considered a question. We had also demonstrated through our own interactions and role-playing how the members of a group interact when working together. We were very specific in our role-playing. We wanted the children to learn to self-monitor their group rather than always needing the teacher to settle disputes or deal with children not on task.

During this modeling, one teacher took on the role of a student who was not on task, while the other teacher played the role of the student who was trying to complete the task. Through this role-play, we demonstrated the use of language that enabled the children to interact positively in order to complete the question writing. It was very exciting to see the children use many of the strategies we had given them for working in small groups.

In their groups, the children worked to write at least one question each. The time of the year determines how much writing the children do themselves and how much the adults in the room do for them. We encourage them to write as much as possible. Because the Llama Project was our first one of the year, adults did a lot of the note taking in each group. Two teachers, two assistants, and usually two parents were involved in our group work with the two classes.

Figure 7-9. Each child in a group wrote a question.

We were very impressed by how well the children came up with questions relating to their topic. All of the children participated in formulating the questions. Once a child formulated a question, he or she was very good at remembering that question when we did our fieldwork.

After the first meeting (approximately 20 minutes) of the small groups, the children came back together as one large group for about 15 minutes. We discussed the subjects of their groups and some of the questions they had written. Children from other groups gave suggestions for additional questions. This meeting was a time of great interaction and dialogue among the children. Many times, the children in a group responded positively to the suggestions by saying things like, "That was a great question" and then wrote the suggestion in their notes. Sometimes children in a group would respond by saying that they thought it was a good question but not one that their group wanted to ask. As the teachers, we added it to our list of questions to ask the expert.

After the children had met in their small groups once to write questions, they then met with a teacher. During this time, the teachers discussed their questions, talked about which question belonged to whom, and, finally, helped them brainstorm more ideas by asking questions of the group. For instance, the "Where Llamas Live" group was having a difficult time asking questions pertinent to their topic. With this

process, the teachers were able to guide the group toward the goal of writing appropriate questions about their topic.

The children then met a second time to add additional questions to their lists. Before the second meeting, we encouraged the children to go home and discuss their category with their families and see what questions their families had about the topic. The second meeting was shorter than the first meeting. Again, we came back together as a whole group and spent 15 minutes discussing what questions we would ask, allowing the rest of the children to add to the list.

Here are some of the questions the children wrote:

GROUP	QUESTIONS
Fur	• How do they take a bath with their fur? • What color is their fur? • How do they scratch their fur? • How long does the fur grow? • How fluffy can their fur be? • What do they do with the fur? • What colors do they change to?
Llama Babies	• How do babies drink? • How do babies go places? • How do babies eat? • How do babies play with their mommy? • Do they cry? • How/when do they walk? • Do they get scared? • How do they get food? • Do babies fight? • How do they grow?
What Llamas Do	• How do they communicate? • Do they walk? • Do they paint? • Can they climb? • Do they play nicely? • Do they get angry at each other? • Do llamas sleep? • Can they lie down? • Are they afraid of shadows? • Can they jump? • Do they do tricks?
The Llama Farm	• Do you keep an eye on the llamas? • Where do the babies sleep? • Why do they have a garage? • Why do they have the fence? • Where did they get the fence? • Where did they get all of the llama stuff? • What do you keep in the barns? • Where do you keep the food?
How Llamas Protect Themselves	• Do llamas kick? • Do they roll over on small things to squish them? • Do llamas run away from bees? • Do llamas use their tails? • Do llamas use their teeth? • Do they protect themselves by running? • Will they run into dark, dingy caves to get away from

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	cheetahs?
Where Llamas Live	• Do they live in a zoo, rainforest, desert, snow mountains, or woods? • Do they live in Florida? • Do they live in Africa? • Can they live in Disney World? • Do they live all over the world? • What kind of houses do they live in?
What Llamas Eat and Drink	• What do they drink out of? • Do they eat llama food? • What do they eat food out of? • What do they drink? • Can they drink milk? • What do they eat? • Do they eat grass? • Do they eat carrots? • Where do they eat and drink? • When do they eat?
How Do Llamas Sleep?	• Do llamas dream? • How do they sleep? • Do they sleep by fences? • Do they sleep in/by the barn? • Do they sleep in the hay? • Do they nap in the sun? • Do they sleep on a bed? • Where do llamas sleep? • What do they sleep on? • Do they sleep outside? • Do they lie down when they sleep?
Colors of Llamas	• Can they be black? • Can they be gray? • Can they be white? • Can they be brown? • Can they be rainbow? • Could they be yellow? • What colors are llamas?
Grooming Llamas	• Who grooms their feet? • Who cuts their hair? • Do they have a barber? • What tools do you use to cut their hair? • Where do they put all of the hair? • Who grooms them on their back? • Who cuts their hair on their stomach? • How does the farmer rub their back?
Parts of Llamas	• Do llamas have toes? • Do llamas have all the parts people have? • How do you know if it is a boy llama? • Do llamas have tails? • Can llamas smell? • Do llamas have teeth?

Teacher Reflections on Phase 1

Because this project was the first of the year, each step took quite a long time because we model every

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step in detail for the children. We have found that modeling allows the children to see and to meet our expectations. We give them the tools to handle many of the situations that may occur while they are working in their small groups. The explanation of role-playing/modeling in the Questions section was only one of the many times we used this style for teaching the children how to work toward completion of an assigned task.

We have found that role-playing and modeling are an excellent teaching tool in our classrooms. The concepts taught carry over to daily learning in the classroom. Some of the situations we have eliminated through the role-playing/modeling are off-task behaviors, questions or drawings that were not on topic, and children not allowing group cooperation to occur.

Before beginning the project, we started to work on writing questions and questioning techniques. We discussed in detail how to write good questions and questions that relate to their topic. We also felt that it was important for the children to have time to meet with the teacher in their individual groups during the question-writing process. This approach allowed us time to focus on the groups of children who had a difficult time writing their questions and to work through the questioning process with them.

At this point in the project, it was a delight to see how excited the children were about the llamas and the preparations we were making to visit the llama farm. The excitement of the children really motivated us and reassured us that all of the hard work we were putting into this project had enhanced the children's learning. It was also a thrill to see the children work through the processes of the project. By the time we were ready to go to the llama farm, the children's questions were of a high quality for 5-year-olds.

Phase 2

Phase 2 consists of fieldwork, discussing activities that are taking place in small groups, investigating questions that were formulated in Phase 1, visiting experts, representing information children learned during their investigations, and creating displays to share their new knowledge.

The following activities took place during Phase 2 of the Llama Project:

- Preparing for fieldwork
- Taking notes
- Doing the fieldwork
- Having whole group and small group discussions
- Planning the representations
- Making the representations of knowledge gained

Preparing for Fieldwork

After the children decided on what information they needed to know, it was time to visit the llama farm. We were lucky to be able to walk next door to see the llamas. The owner, Dr. Riley, was very nice and accommodated us well. He allowed us to visit in small groups every morning for a week! We decided that with so many students involved in the project, we needed to visit on four different days.

We, as the teachers, have a responsibility for providing good-quality fieldwork. When we set up a fieldwork visit, we discuss, in detail, with the owner, manager, or expert what the children need from the visit. We have to be very specific so that we are not herded through the facility as a whole group, unable to ask the questions that the children have written.

The day of the visit to the llama farm finally arrived for the first group of children. Each of the teachers took turns taking small groups (8-10) of children to the llama farm. We also took an assistant to help the children and to take notes. The children also took clipboards and pens to take notes. Many times, these notes were needed for reference when the children were in the representational stage of the project.

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Note Taking

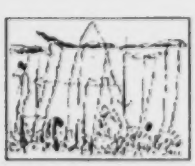
Each child was expected to take notes during the fieldwork. Before we went to the llama farm, the children were taught note-taking skills and were able to practice. We discussed what was appropriate and what was not appropriate to put in their notes. We also allowed time to take the clipboards outside on a nature walk to help the children learn to take notes. As we went on our nature walk, the teachers also had clipboards. We let the children hear us talk about some of the things we thought were important to write or draw about. This practice again goes along with our philosophy of modeling for the children. We then came back into the classroom and discussed their note taking. We talked about what they had written/drawn and what it meant to them now that they were back in the classroom. We showed them our notes and discussed the importance of what and why something was drawn and what and why something was written.

Fieldwork

The children were very excited to go to the llama farm for their fieldwork. They had worked very hard up until this point to be sure that their questions were the "right" questions! The children knew that while they were at the llama farm, they were responsible for asking questions, making sketches, and gathering other pertinent information. This process was discussed and practiced in the classroom before we went on the field visit.

At the llama farm, children drew or wrote the information at their own developmental level. It was interesting to see what they felt was important to write or draw about. They also copied words from environmental print and drew items that they observed at the site.

Some of the things that the children drew were the llamas, parts of the barn, specific items that had to do with their topic, some of the signs around the farm, the trailer that the llamas rode in, and, of course, Dr. Riley.



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Figures 10-18. At the llama farm, the children drew or wrote about what they observed.

Figure 19. Jonathan drew a llama that showed the two toes.

Figure 20. Students sketched a llama as Dr. Riley explained the different parts of llamas.

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Figure 21. Jack wrote information about the llama's food.

Figure 22. Alyssa used many details in her drawing of a llama.

Figure 23. Dr. Riley explained to the children the different types of food needed to keep the llamas healthy.

Figure 24. Dr. Riley introduced a baby llama to the children.

Figure 25. The children excitedly took turns petting the llama and were surprised at how soft it was.

Figure 26. Laura was intensely sketching a llama.

Figure 27. Dr. Riley explained to the children the many uses of llamas.

Figure 28. Michael nervously petted the llama being introduced to him by Dr. Riley.

Dr. Riley was an excellent expert. Because this was our second year that we visited, he felt comfortable with the children and the routine. He always gave them plenty of time to draw. He was also good at allowing the children to ask all of their questions first before giving the children any other information. He always directed his questions to the children, not the teachers. He also made sure that everyone had a chance to ask his or her question.

Dr. Riley was very well prepared for us. If the fur group was coming, he not only had many types of fur for them to take back to school but also had many items for them to see and draw that were made from llama fur.

Figures 29-30. Dr. Riley showed items made of llama fur.

Dr. Riley felt so comfortable with the children's behavior that he allowed us to go into the field with the llamas to see where they ate and slept. He knew that he could tell the children what his expectations were for behavior, and these expectations would be met!

Going to the llama farm is a fantastic experience for both the children and the teachers. Dr. Riley also enjoys our visits! He likes to see what the children have done to represent what they have learned, and he always comes to the children's sharing day.

We also take many, many photographs to help the children remember what they saw when they work on their representations after the visits. After experiencing several projects, we quickly learned what types of items the children were interested in remembering. The small details usually interest them the most. We also encourage the children to tell us what photographs they need/want to help them with their topic.

While working on this project, the teachers kept a lot of notes on what the children said and things they asked. When we went to visit the llama farm, a child asked a very humorous question:

Dr. Riley: "Who has a question?"
Max: "I do."
Dr. Riley: "What is it?"
Max: "Is your mama a llama?"
Dr. Riley: "No, but my best friends are."

Max had read the book *Is Your Mama a Llama?* by Deborah Guarino and very innocently asked the question. Dr. Riley very nicely answered it but in a different context. Dr. Riley had never heard of the children's book. We decided to give it to him on one of our future trips to the farm.

Group Discussion

After everyone had gone to the llama farm, we had a group discussion about things they wanted to share, things they had discovered, or things they had learned. The children were most surprised by the colors of the llamas. They were excited to share with everyone the fact that there were no pink or purple llamas. The other subject of conversation was the fact that the llamas came from South America originally. This

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conversation was a great opportunity to discuss that we lived in Indiana and that was certainly a long way from South America. The children were excited to see how far the llamas had to be brought to come to North America. We also looked at the mountains on the Internet to see what they looked like.

At this point, we also looked at the topic web to see if there were things that we wanted to remove or change. The two big changes were where llamas lived and the colors. We put all of the children's ideas on the web at the beginning because they remember so much better the facts they learn when they discover them from an expert such as Dr. Riley rather than from the teachers when we make the web.

Small Group Discussions

After talking in a large group in the morning, the children divided into their topic groups in the afternoon to discuss what they had learned and to share their field notes with each other. It was exciting for us to hear the children's conversations. They took their job to collect information seriously. The children knew that our next step was planning their representations, and many started these discussions at this time.

Planning

Because this project was our first, the children needed a lot of guidance to come up with something that would represent what they had learned. Again, as in earlier parts of the project, we do a lot of modeling for the children. We were very specific about the objectives for the children. We have learned that if we take a lot of time working with the children during the planning process, the representations are of a much higher quality.

First, with the children, we brainstormed all of the different ways we could make representations. The children had used many different types of media by this point. Many of them have older brothers and sisters and have watched them complete projects at home using even more media than we have used at school. The children decided that they could do any of the following: write a book, make a poster, make a model, use clay, make a diorama, use papier-mâché, or use paint to make their representations. This brainstorming occurred during one large group session.

Second, during our next meeting with the children, we talked about the requirements for completing the representation. We had the following expectations for each group:

- They all were expected to work cooperatively; even if a child's idea was not chosen, he or she still had to participate.
- Everyone had a task to complete in the final representation.
- All groups had to have a group plan drawn or written.
- Everyone had to decide what each person in the group would do to help complete the representation.
- Each group had to meet with the teacher after completing the group's plans.

Third, we demonstrated what it was like to be in a group and negotiate an agreement about what we would make. To model this step for the children, we chose a topic that did not pertain to llamas. Instead, we used the topic of the veterinarian, and our pretend group was cats. We chose a different topic so that the children did not do exactly what we did. Rather, they would have to come up with their own idea. In front of the children, we talked about what we had learned in our group, what we could make to show the rest of our friends what we had learned, what the final product would look like, and who would do each part.

Fourth, we let the children go through the same procedures that we had modeled, and they planned their representation. When they had completed their drawings and had decided what each of their jobs would be, they met with a teacher. When the children met with the teacher, they explained their plan for their representations. The teacher asked questions about their plan and took notes to be sure that they all understood what they would be doing. The children then worked together, with the teacher, to decide what materials were needed and who would get the materials.

The "Parts of a Llama" group decided to use papier-mâché to make a llama. When the children met with the teacher, it was a great opportunity to discuss with them whether they really knew what papier-mâché was. Some of the children in the group did know, and some did not. After the teacher explained the process to them, the whole group was excited to use this medium to complete their task. Another group overheard this group talking and decided to also make their mountain out of papier-mâché.

After meeting with the small groups, the teachers got together to decide whether they had the materials, how they could get the materials, what materials the children needed to bring, and which groups the teachers would need to work with to get started. Because papier-mâché was a new medium to some children in the two groups that wanted to use it, one teacher worked with these children to teach them how to use it.

Fifth, we had one more large group meeting. At this meeting, each group of children reported to the rest of the class what they were making and what materials they planned to use. A few groups needed common materials such as straws or various sized boxes. They asked the whole group to bring these items from home if they had them and had permission from their parents. This strategy again makes a home/school connection and enables the families to be involved.

Sixth, we explained and again modeled the specific requirements for the finished product:

- Everyone must do his or her part but at the same time work together.
- Everyone must help gather materials and help clean up.
- All finished pieces or parts must be labeled so that everyone can understand the representation.
- There must be a title (usually the group name).
- Everyone's name in the group must be on the finished product.

We also showed the children a finished example from one of our other projects and talked about what made it a great example.

The following photos show the children in the planning stage. Notice how intense they are!

Figure 31. Looking at their notes, students discussed ideas of ways to represent knowledge gained.

Figure 32. Students shared with each other their thoughts on the most important part of their field notes.

Making the Representations of Knowledge Gained

Finally, the children began work on their representations. To give children individualized attention during the first time we worked, four adults worked with five of the groups (or half of the children) at one time. The remaining half of the children worked with hands-on language arts and math materials in the room next door. Having this ratio was really important because this project was our first and therefore the children needed a lot of help to get started. We had put out many of the materials that they would need in one central location. They also knew where many of the other materials were stored in the classroom because they used them daily. As the children became involved in their work, the adults roamed the room asking questions and giving encouragement. Here are some of the things you could hear the adults saying:

- "You are working well together."
- "Can I help by getting any materials you don't see in the room?"
- "That is looking great!"
- "How are you going to put that together?"
- "Have you looked at your field notes to check that?"

We have learned from our past experiences that the children need large blocks of time in which to truly become engaged and to thoroughly complete their tasks. The children are very highly motivated once they get started. It is very hard for them to stop what they are doing and then have the same high level of motivation on the next day. We like to give them enough time so that they can get a large portion of their representations completed before having to clean up their area.

Putting work that is in progress away and coming back to it the next day also has its benefits. The children have a fresh eye for their work, and most complete their part of the project the second day. Many make changes that improve the quality of their final product.

Figure 33. Children worked hard making the components to put their poster together.

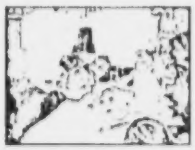

Figure 34. Students shared with the teacher the progress they made.

Figure 35. Evan put the finishing touches on his group's poster.

Figure 36. Amy was getting help from Mrs. George on how to write the title of her group's poster.

View of One Group

While three adults roamed the room, one teacher worked with the two small groups that were learning how to use papier-mâché. The teacher demonstrated the technique and offered some suggestions for the base part of the llama and mountain. Using a large quantity of newspaper and rolls of masking tape, the children completed their bases on which they would add the papier-mâché. The children had to work out many problems to get the llama to stay together and to stand up! With the help of a lot of leading questions from the teacher and a lot of problem solving, the children finally completed a life-size baby llama base that they would complete with papier-mâché.

Figure 37. Students worked together to form the base of the mountain and a llama out of papier-mâché.

Figure 38. It took lots of masking tape to form the base for one of the llama's legs.

The papier-mâché was mixed, and the strips were torn. The teacher again showed the children how to dip the strips, wipe off the extra solution, and to wrap the base. The first child who put his hands in the mâché solution gagged and vomited on the base of the llama! We could not throw it away, so being dedicated teachers, we got the nurse to help us decide what we could do. One of the teachers put on rubber gloves and cleaned up the llama. Fortunately, the vomit had only gotten on the neck of the llama. The nurse suggested that the llama be sprayed with disinfectant and that the teacher wrap the neck. The next day, the children took over the process of completing the llama.

Figure 39. The children were excited to finally get their hands into the papier-mâché.

Figure 40. Susan carefully removed the excess paste from a newspaper strip.

Figure 41. Susan put the final touches on the mountain.

After the papier-mâché llama dried, the children decided not only to paint the llama but also to add real llama fur to it. Dr. Riley was very happy to supply the fur. The students did not really need help, but they did need guidance to complete the llama. Because we had so many adults in the room, it was easy for one teacher to serve as their resource.

Figure 42. Mrs. Stuglik was the one chosen to help mix glue, paint, and fur to complete the llama.

Other Groups

Each group had its own unique representation. The children made the following things to represent what they had learned about their aspect of the topic of llamas. The photos show some of the children's final products.

Name of Group	Representation
How Llamas Protect Themselves	3-D models from paper, clay, and wire
Where Llamas Live	Papier-mâché mountain and clay llamas
What Llamas Eat and Drink	Diorama and paper llamas
How Do Llamas Sleep?	Diorama and clay llamas
Colors of Llamas	Clay llamas
Fur	Book of clothes you can make from fur
Llama Babies	Poster about babies
What Llamas Do	Puppets and puppet show
The Llama Farm	Map of the llama farm
Grooming Llamas	Book with photos of the tools and pictures of llamas
Parts of Llamas	Papier-mâché and fur 3-D llama

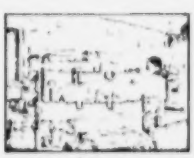

Figure 43. This group made puppets and wrote a puppet show about what llamas do.

Figure 44. This group chose many different media to represent how llamas protect themselves.

Writing

After the children finished their representations, they worked with a teacher to write about their topic. The children dictated to a teacher as she typed on the computer. The children told the story of their part of the project (or what they remembered) in sequence. Their photo with their project was added to the text and hung up with their finished representation. The text was typed exactly as the children dictated it. This task is an excellent recall and sequencing activity for the children. The following transcript was dictated by the group that studied parts of the llama.

Parts of a Llama
Dictated by
Joe, Martha, Cathy, Hank, and Samuel

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"We were in our writing questions. We went to the llama farm. We seed the llamas. We checked them out and petted. We looked at the babies. We ask Mr. Riley some questions. We drawed a picture of a llama. We wrote the things we saw. We showed somebody our pictures.

We wanted to make a llama; one big llama. We all wanted to do papier-mâché. We rolled some paper and put tape around it. We took strips of paper and put it in papier-mâché. We wrapped it around the llamas. It had to dry. We painted it and put llama fur on it. We looked at their teeth. We put on eyes and a nose. We put on our labels."

Samuel: "I helped make the legs and roll them and tape them. I put on the nose. I put on fur. I put on labels."

Hank: "I helped Cathy with one leg and roll it. I helped tape. I put on the papier-mâché. We got it all over us. We painted it. I put fur on. I put the labels on."

Cathy: "I rolled the legs. I papier-mâchéd the body and the legs. It was sticky to me! I put on the fur and labels."

Martha: "I rolled up the body, and Joe and Hank taped it. I did a lot of gluing and papier-mâché. It was gooshy. Then I painted, and Mrs. Stuglik helped with the fur. We had fur on out shoes. I made labels."

Joe: "I did the legs and the taping. I papier-mâchéd. Mrs. Ganzel helped me, and Samuel helped me. It was really messy. I was very covered. I put furn on it. I put labels on it."

Figure 45. This was the group who was so determined to use papier-mâché. Their final product looks great!

Teacher Reflections on Phase 2

As the children began the representations, at first glance, the classroom appeared to be in chaos. When the onlookers continued to observe, they saw that the children were very focused in their activities. As teachers, we felt very frazzled for the first 10-15 minutes as we organized all of the materials. Of course, the children needed them "now!" Once the children became engaged, it was a joy to walk around giving encouragement, questioning the children, and seeing their deep absorption in what they were doing. We also enjoyed observing the children and taking notes on individual strengths and weaknesses.

One of the most interesting things that we observed was how every child was able to fully participate regardless of his or her developmental level. The children in the groups seemed to know what skills each had and quickly took advantage of them. Even our children with special needs were given jobs by the rest of their group that they could complete, which helped them feel successful!

When the representations were finished and we viewed the completed projects, we were very proud of both the children's and our accomplishments. To finally see all of our hard work pay off and to see that the children were successful in the task that was presented to them validated not only what we do as teachers but also the importance of project work.

Phase 3

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Phase 3 includes the sharing of the representations with others and the introduction of fantasy to the topic.

The following activities took place during Phase 3 of the Llama Project:

- Sharing with the other students
- Writing a letter to parents about our sharing
- Creating a rubric for parents about how their children performed in the project
- Sharing the story of the project with parents, including the final representation
- Viewing a cartoon movie about llamas
- Reflecting on the entire project by the teachers

Sharing with Other Students

After all the children had completed both their representations and the "typing," they were ready to share both the knowledge they had gained and their representations with the other students in the classroom. The teachers modeled their expectations for the group presentations. We demonstrated through role-playing a sample presentation for the children. We portrayed various roles of children making presentations. This role-play included all of the requirements for an informative group presentation:

- Title of their project
- Explanation of what they had learned
- Explanation of the questions they had asked and the answers they had received
- Explanation of what they had made to represent the knowledge gained about their specific topic
- Explanation of why they chose their materials in their final product
- Explanation of how they made the representation

The teachers also asked that everyone in the group speak during the presentation. Up until this point, the children had many opportunities to talk in front of the rest of the group, and most children felt comfortable doing so.

The children were given time to meet in their topic groups and decide what they would share with the other children and who would share which information. The children were also instructed on how to be a polite audience.

Most groups did an excellent job of presenting. The children were very quick to help one another in their group. If a child got stuck or could not remember what to say, another child in the group would whisper information to that child. Because this group presentation was the children's first of the year, interactions between the teacher and each of the groups occurred. The teachers asked the children leading questions so that the groups would share the information important to the group's topic. Some of the groups needed a lot more questioning from the teachers than did other groups.

Presentations for Parents

After the children had shared with their peers, they decided to celebrate their success with their parents. We decided on a day and sent a note, two weeks in advance, to the parents to inform them of the sharing event. For this project, we were able to have the sharing coincide with the parent conferences. Because the conferences were student led, this sharing event was one more learning experience the children were able to share with their family. We also sent information home to the parents about the project and about their child's participation in the project.

When the parents came to view our work, their child was responsible for giving them a tour of not only the work that he or she accomplished in the project but other children's accomplishments as well. We provided a four-page "Tour Brochure" to help the parents know what questions to ask their tour guide (their child). The front contained the title and a picture drawn by a student. The middle two pages gave the parents information about all of the documentation hanging on the wall and specific questions to ask their

child. The last page listed what Indiana Academic Standards were covered during the Llama Project.

Thank you for coming today. Our Llama Project was great! We were so lucky to have Mr. Riley and his llama farm next door. We have had many wonderful conversations about llamas. The children really enjoyed this project and we saw a lot of growth in the children and their ability to work cooperatively in groups. The children have also gained a lot of knowledge about llamas. Here are a few hints to help you have a fantastic tour. · Please be sure to keep little ones with you. · Be sure to obtain a tour guide (your child) · Be sure to look at all documentation (typewritten explanations and pictures) on the wall. This will help to give an idea of what you are viewing. · On the following page is a list of questions for you to ask your tour guide. · Have fun and enjoy!	Here are the questions your tour guide should be able to answer: (The projects are on the wall and on the table.) 1. Which Project is yours? 2. Who was in your group? 3. How did you make your Project? 4. What part did you make? 5. What was the hardest part? 6. What was the easiest part? 7. Can you tell me about someone else's Project? 8. What was your favorite part of this Project? 9. What did you learn from this Project? 10. If you could be in another group, which group would you choose? / Why? 11. Show me the pictures of your visit to the llama farm.

Figure 46a. The middle of a brochure for parents.

Skills and Indiana Academic Standards practiced during the Llama Project

- Questioning (Sci. K1.1)
- Writing for a specific purpose (L.A. K.5.2)
- Writing using pictures, letters, or words (LA K.4.3)
- Taking notes (LA K.4.4)
- Write moving from left to right (LA K.4.5)
- Identifying everyday print (LA K.3.2)
- Understand and follow one and two step directions (LA K.7.1)
- Share information and ideas (LA K.7.2)
- Describe people, places, and things (LA K.7.3)
- Tell a story in a logical sequence LA K.7.5)
- Identify and order events that take place in sequence (S.S. K.1.4)
- Identify rules (SS K.2.5)
- Learning about people in the community (SS K.3.3)
- Identify different kinds of jobs of people (S.S.K. 4.1)
- Counting (SCI K.2.1; Ma. K.1.6)
- Draw and write about experiences (SCI K.2.2)
- Make comparisons (Ma. K.5.1)
- Use objects from real world as subject matter for art work (V.A. K.7.1)
- Identify and use media and processes to express ideas and experiences (VA K.9.2)
- Students will be able to sing alone or in group (Mu. K.1.)
- Plays instrument alone and together (Mu. K.2.1)
- Composing (Music)

Figure 46b. The last page of the brochure.

Figure 47. Mary was intensely explaining to her mother the pre-drawings of llamas.

Figure 48. Jerry showed his mother what he made to represent his knowledge gained.

Figure 49. Ellen explained to her dad what she thought llamas looked like before she went to the llama farm.

Figure 50. Michael shared with his dad all of his group's hard work on their final product. He was really excited about their typed explanation.

Figure 51. Sue excitedly pointed to the question that she wrote before going to the llama farm.

The letter below was sent to parents about a week before they came to view the project.

Letter to Parents

As you know, for the last few weeks we have been working on our Llama Project. We had many goals when working on this project. The children have been learning how to work in small groups cooperatively, write and ask questions, research a topic through the use of an expert, complete a representation, and make group presentations.

The process the children went through to complete the Llama Project included many steps. First, the children chose a group to be in, by topic. Second, they developed questions to ask Mr. Riley when they visited the llama farm. Third, they asked the questions when they went to the llama farm and took notes. Fourth, they met as a topic group and discussed the answers and how they could

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represent what they had learned. Finally, they worked as a cooperative group to complete their representation and make a presentation to the rest of the children about their topic. You have been invited to visit our Llama Project on Thursday, November 4.

Some things for you to look for when you come to visit our Llama Project are: did your child do an equal part of the representation; was your child's part of the representation on the group's chosen topic; can or has your child told you about the process used to complete the representation of their group's topic?

As the children worked through the Llama Project, they were observed in three areas. On the next page is a rubric that will inform you of your child's cooperation and participation in this project.

Rubric

We used the following rubric with the children. This rubric provided parents with a lot of information and answered many of the questions that they had about how much their child participated in the project. To be able to fill out the rubric for each child, we kept daily notes about what we observed as the children worked. Note that the rubric is a continuum and does not have a point value. Our goal was not to grade the children but to provide valuable information for the children, the parents, and the teachers.

Rubric

Cooperation in Group Work

Worked alone; did not participate as a member of the group	Participated in group discussions but little or none of the work	Participated/contributed to the group, but did his/her work independently	Worked entirely as a cooperative member of the group

Individual Work

Displayed inappropriate behavior during project time	On task part of the time; displayed some inappropriate behaviors	On task and displayed appropriate behavior most of the time	Always on task and displayed appropriate behavior

Group Presentation

Did not talk during group presentation	Participated with teacher encouragement	Fully participated in the group presentation	Fully participated in the group presentation and encouraged (helped) other members

Fantasy

For our celebration of all of our great work on the project, we read a couple of fiction books about llamas

and allowed the children to watch an animated movie about llamas.

Teacher Reflections on Phase 3

It is wonderful to reflect on the entire project at the time of its completion. It gave us time to celebrate the accomplishments of the children. We also thought about best teaching practices. We needed to understand what worked well for the children and what was difficult for the children, so that we could make adjustments during the next project.

It was wonderful to see and hear the interactions between the children and their parents or special guests. It was great to see the children take on their new roles as teachers/experts while their parents were the learners. These interactions were both thought provoking and humorous.

As this project was our first of the year with these children, the parents had never actually experienced project work except through our weekly newsletters and information provided by their child. Up until this point, parents had only experienced children's learning through teacher-led activities. The parents were both pleased and surprised by the wealth of knowledge and the skills gained throughout the project. One of the "ahh-ha's" for the parents was when they realized that this project had meaning and purpose, was a true learning experience, and was not unstructured chaos as they might have thought when reading the newsletters or working in the classroom.

Upon final reflection on the Llama Project, we as teachers are reinforced by knowing that through the framework provided by the Project Approach, the children had valuable and insightful learning experiences.

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